AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (original) Electrophoretic system comprising a separation system and a detection system,

said separation system comprising a channel (1) and a first separation electrode (2) located at a first end of the channel (1) and a second separation electrode (3) located at a second end of the channel (1),

said separation system being arranged in such a way that a potential difference can be applied between the first and second separation electrodes (2, 3),

said detection system, in use, being positioned close to channel (1) or inside the channel (1)

characterised in that

the electrophoretic system comprises means to reduce a voltage difference between the separation system and the detection system in order to prevent electrical breakthrough between the separation system and the detection system, where said means to reduce said voltage difference comprise a DC-voltage source (21).

2. (original) Electrophoretic system according to claim 1, **characterised in that** at least one potential sensor (20) is provided located close to the detection system, which controls the DC-voltage source (21).

3. (currently amended) Electrophoretic system according to ~~any of the preceding claims~~ claim 1,

characterised in that the detection system comprises one or more electrodes (11, 12, 13, 14) and a first AC-voltage

source (7) and a conductivity of a liquid is determined by measuring parameters obtained from the electrodes (11, 12, 13, 14).

4. (currently amended) Electrophoretic system according to ~~any of the preceding claims~~ claim 1, **characterised in that** the detection system comprises four electrodes (11, 12, 13, 14) having two outer electrodes (11, 12) and a first AC-voltage source (7) connected to the two outer detection electrodes (11, 12) and a conductivity of a liquid in said channel (1) is determined by measuring parameters obtained from the electrodes (11, 12, 13, 14).

5. (currently amended) Electrophoretic system according to claim 3 [[or 4]], **characterised in that** the one or more electrodes (11, 12, 13, 14) are in galvanic contact with the liquid.

6. (currently amended) Electrophoretic system according to claim 3, [[4 or 5]], **characterised in that** a second AC-voltage source (9) is connected to the second separation electrode 3.

7. (original) Electrophoretic system according to claim 6, **characterised in that** the second AC-voltage source (9) is controlled by the first AC-voltage source (7).

8. (original) Electrophoretic system according to claim 7, **characterised in that** said first AC-voltage source (7) is connected to said second AC-voltage source (9) via an amplifier (8).

9. (original) Electrophoretic system according to claim 8, **characterised in that** said amplifier (8) has an amplification factor equal to or smaller than 1.

10. (new) Electrophoretic system according to claim 4, **characterised in that** the one or more electrodes (11, 12, 13, 14) are in galvanic contact with the liquid.

11. (new) Electrophoretic system according to claim 4, **characterised in that** a second AC-voltage source (9) is connected to the second separation electrode 3.

12. (new) Electrophoretic system according to claim 5, **characterised in that** a second AC-voltage source (9) is connected to the second separation electrode 3.

13. (new) Electrophoretic system according to claim 10, **characterised in that** a second AC-voltage source (9) is connected to the second separation electrode 3.

14. (new) Electrophoretic system according to claim 11, **characterised in that** the second AC-voltage source (9) is controlled by the first AC-voltage source (7).

15. (new) Electrophoretic system according to claim 12, **characterised in that** the second AC-voltage source (9) is controlled by the first AC-voltage source (7).

16. (new) Electrophoretic system according to claim 13, **characterised in that** the second AC-voltage

source (9) is controlled by the first AC-voltage source (7).